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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/568,992

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Jurgen Meyer

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EXAMINER

BROWN, COURTNEY A

ART UNIT

PAPER NUMBER

1616

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/568,992	Applicant(s) MEYER ET AL.	
	Examiner COURTNEY BROWN	Art Unit 1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Acknowledgement of Receipt/Status of Claims

This Office Action is in response to the amendment filed September 23, 2009. Claims 1-14 are pending in the application. Claims 1-3,5,7-10 and 12-14 have been amended. Claims **1-14** are being examined for patentability.

In the previous Office Action of record, mailed June 24,2009, the Examiner inadvertently did not cite Anderson et al. (US Patent 6,521,668 B2) in the statement of rejection. The Examiner wants to thank Applicant for pointing to this error and for addressing the teaching of this reference in relation to the instant application. The Examiner has now correctly cited Anderson et al. in the statement of rejection below.

Rejections not reiterated from the previous Office Action are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of rejections and/or objections presently being applied to the instant application.

The rejection of Claims 1-14 under 35 U.S.C. 103(a) as being unpatentable over Kerner et al. (US 2002/0168524 A1) in view of Shimohata et al. (JP 2003292790 A) and Anderson et al. (US Patent 6,521,668 B2) **is maintained**.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerner et al. (US 2002/0168524 A1) in view of Shimohata et al. (JP 2003292790 A) and Anderson et al. (US Patent 6,521,668 B2).

Applicant's Invention

Applicant claims surface-modified , pyrogenically produced zinc oxides, characterized in that they have the following physico-chemical characteristic data: BET surface areas of $18 \pm 5 \text{ m}^2 / \text{g}$ and C content of 0.5 to 1.0 wt. %

***Determination of the scope and the content of the prior art
(MPEP 2141.01)***

Kerner et al. teach surface-modified, doped, pyrogenically produced oxides such as zinc oxide (see [0005]) surface-modified with one or several organosilane compounds as disclosed in claim 2 of the instant application (see abstract and [0007-0118] of Kerner et al.). Kerner et al. teach a method of producing the surface-modified, pyrogenically produced oxides doped by aerosol, characterized in that the pyrogenically produced oxides are placed in a suitable mixing container, sprayed under intensive mixing, optionally with water and/or acid at first and subsequently with the surface-modification reagent or a mixture of several surface-modification reagents, optionally re-mixed for 15 to 30 minutes and are subsequently tempered at a temperature of 100 to 400 degrees Celsius for a period of 1 to 6 hours ([0119]). Further, Kerner et al. teach a production method for surface-modified, pyrogenically produced oxides doped by

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aerosol wherein the pyrogenically produced oxide starting material is mixed as homogeneously as possible with organohalosilanes under conditions, where oxygen is excluded, followed by a step where the mixture is heated with slight amounts of water vapor and optionally, in a continuous stream of inert gas in a treatment chamber designed as an upright tubular oven at temperatures of 200 to 800 degrees Celsius, preferably 400 to 600 degrees Celsius. The solid and gaseous reaction products are then separated from each other and, if necessary, the solid products are deacidified again and dried (see [0121]). Kerner et al. teach that the pyrogenically produced oxides doped by aerosol can be doped pyrogenically produced oxides of metals and/or metalloids in which the base components are oxides of metals and/or metalloids produced pyrogenically by flame hydrolysis wherein the BET surface of the doped oxides is between **5 and 600 m²/g** ([0122]). Kerner et al. additionally teach the use of the pyrogenically produced, surface-modified and doped oxides as UV blockers in cosmetics ([0145]).

***Ascertainment of the difference between the prior art and the claims
(MPEP 2141.02)***

The difference between the invention of the instant application and that of Kerner et al. is that Kerner et al. do not expressly teach a surface-modified zinc oxide that has an average diameter of 50 to 300 nm. This deficiency in Kerner et al. is cured by the teaching of Shimohata et al. Shimohata et al. teach a resin composition which is characterized by containing composite particle powder which has an average particle diameter of 0.01 to 10.0 microns and is prepared by coating the particle surfaces of zinc

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oxide particle powder with an organosilane compound (see PROBLEM TO BE SOLVED SECTION and abstract of Shimohata et al.).

The difference between the invention of the instant application and that of Kerner et al. is that Kerner et al. do not expressly teach a surface-modified zinc oxide having carbon content between 0.1-5 percent. This deficiency in Kerner et al. is cured by the teachings of Shimohata et al. Shimohata et al. teach the use of carbon black on a zinc oxide composite particle powder wherein the coating weight of said carbon black is 1-100% ([0013]).

The difference between the invention of the instant application and that of Kerner et al. is that Kerner et al. do not expressly teach a sunscreen preparation comprising the claimed surface modified zinc oxide wherein the sunscreen carrier is one such as ethylhexylmethoxycinnamate. This deficiency in Kerner et al. is cured by the teachings of Anderson et al. Anderson et al. teach the use of ethylhexylmethoxycinnamate as a carrier in a sunscreen preparation (see claims 1 and 8 of Anderson et al.).

The difference between the invention of the instant application and that of Kerner et al. is that Kerner et al. do not expressly teach that **a.)** The surface-modified zinc oxide aggregates have a shape factor F (circle) of below 0.5 and **b.)** The surface-modified zinc-oxide powder displays at its surface an oxygen concentration as non-desorbable moisture in the form of Zn-OH and/or Zn-OH₂ units of at least 40.

Finding of prima facie obviousness

Rationale and Motivation (MPEP 2142-2143)

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Kerner et al. and Shimohata et al. to produce a topical sunscreen composition comprising surface-modified zinc oxides that has an average diameter of 50 to 300 nm and a carbon content between 0.1-5 percent. Shimohata et al. teach that the addition of carbon black and an organosiloxane provides a composition having excellent mechanical strength, light resistance and ageing resistance (see PROBLEM TO BE SOLVED SECTION and abstract). One would have been motivated to make this combination in order to receive the expected benefit of having a sunscreen composition that contains particles having excellent mechanical strength, light resistance and ageing resistance.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Kerner et al. and Anderson et al. to produce a topical sunscreen composition comprising surface-modified zinc oxides and ethylhexylmethoxycinnamate as a sunscreen carrier. Kerner et al. teach the use of the pyrogenically produced, surface-modified and doped oxides as UV blockers in cosmetics ([0145]) and Anderson et al. teach the use of ethylhexylmethoxycinnamate as a carrier in a sunscreen preparation (see claims 1 and 8 of Anderson et al.). Thus, in view of *In re Kerkhoven*, 205 USPQ 1069 (C.C.P.A. 1980), it is *prima facie* obvious to combine two or more compositions each of which is taught by prior art to be useful for

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the same purpose in order to form a third composition that is to be used for the very same purpose. The idea of combining them flows logically from their having been individually taught in prior art, thus claims that requires no more than mixing together two conventional sunscreen compositions set forth prima facie obvious subject matter.

In reference to the surface-modified zinc oxide aggregates having a.) a shape factor $F(\text{circle})$ of below 0.5 and b.) displaying at its surface an oxygen concentration as non-desorbable moisture in the form of Zn-OH and/or Zn-OH₂ units of at least 40%, In reference to a.) ,Shimohata et al. teach that particle shape of zinc oxide particle powder may be in any shape, such as a globular shape, grain form, the shape of a polyhedron, a needle, a spindle shape, rice grain shape, flaky, scaly, tabular ([0017] of Shimohata et al.) and Kerner et al. teach that the aggregate structure or agglomerate structure of the pyrogenic oxide can be influenced by selecting suitable doping components ([0132]). Therefore, the shape factor as well as b.) the oxygen concentrations at the zinc oxide's surface are **physio-chemical properties** which are inherently possessed by the surface- modified zinc oxide, depending on the components used to modify the zinc oxide's surface and other physical factors. "A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Further, the U.S. Patent Office is not equipped with analytical instruments to test prior art compositions for the infinite number of ways that a subsequent applicant may present previously unmeasured characteristics. When as here, the prior art appears to contain the exact same

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ingredients and applicant's own disclosure supports the suitability of the prior art composition as the inventive composition component, the burden is properly shifted to applicant to show otherwise.

In light of the forgoing discussion, the Examiner concludes that the subject matter defined by the instant claims would have been obvious within the meaning of 35 USC 103(a).

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Examiner's Response to Applicant's Remarks

Applicant's arguments filed on April 7, 2008, with respect to the 103 rejection of claims 41,43, and 46-48 over Aubert et al. (US Patent No. 5,597,558) in view of Aubert et al. (US Patent No. 6,190,671) and Rigal et al. (US Patent No. 5,618,521) have been fully considered but they are not persuasive. Applicant states that Kerner et al. teaches the use of zinc oxide as a candidate oxide; aluminum, cerium, potassium and noble metals as dopants and that uses are mentioned for the silanized products but in each case, Applicant argues that none are exemplified. However, the Examiner disagrees with Applicant's argument because when considering a prior art's teaching; the whole

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reference is considered, including the examples. Thus, the subject matter defined by the instant claims would have been obvious within the meaning of 35 USC 103(a).

With regards to Shimohata et al., Applicant argues that Shimohata et al. appears to be directed to reinforcing filler for resins. Applicant argues that the exact role of carbon black other than as a pigment is not readily apparent and that a cosmetic use for the Shimohata et al. composition is not taught. However, the Examiner disagrees with Applicant's arguments because Shimohata et al. teaches that zinc oxide absorbs the light of ultraviolet radiation, having the ultraviolet screening effect is known ([0003]). It is also known to one of ordinary skill in the art that sunscreen compositions often comprise resin components. Further, Applicant is arguing intended use and independent claim 1 is drawn to surface-modified , pyrogenically produced zinc oxides with a C content of 0.5 to 1.0 wt.%. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, and then it meets the claim.

With regards to Anderson et al., Applicant argues that Anderson et al. does not appear in the statement of rejection but is relied upon and discussed in the body of the rejection. The Examiner inadvertently did not cite Anderson et al. (US Patent 6,521,668 B2) in the statement of rejection. The Examiner wants to thank Applicant for pointing to this error and for addressing the teaching of this reference in relation to the instant

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application. The Examiner has now correctly cited Anderson et al. in the statement of rejection above.

Applicant argues that Anderson et al. mentions titanium dioxide and zinc oxide are mentioned as ingredients and that the nature of these oxides, e.g. silanized, BET, etc. are not discussed. However, the Examiner disagrees with Applicant's arguments because the teaching of Anderson et al. was joined to show that the use of ethylhexylmethoxycinnamate as a carrier in a sunscreen preparation (see claims 1 and 8 of Anderson et al.) was known at the time the instant invention was filed.

Applicant states that the claimed BET value does fall within the Kerner et al. numeric range of 5 -600 m²/g but argues that the zinc oxide of the instant claims is not Kerner et al.'s doped pyrogenically produced metal oxide to which the range pertains. However the Examiner disagrees with Applicant's argument because Kerner et al. teach that the pyrogenically produced oxides doped by aerosol can be doped pyrogenically produced oxides of metals and/or metalloids in which the base **components are oxides of metals** and/or metalloids produced pyrogenically by flame hydrolysis wherein the BET surface of the doped oxides is between **5 and 600 m²/g** ([0122] of Kerner et al.).

Finally, Applicant states that the experimental results shown in the specification show synergism in terms of SPF values on pages 26-34 when the claimed silanized zinc oxide is used with octocrylene (OC), ethylhexyl methoxycinnamate (OMC), phenylbenzimidazole sulfonic acid (PISA) or bis-ethylhexyloxy methoxyphenyl triazine

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(BEMT), respectively. However, the Examiner disagrees with Applicant's assertion because the instant claims do not recite synergy. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Further, the BET in Example 1, Table 2 is $36 \text{ m}^2/\text{g}$ and the instant claims recite $18 \pm 5 \text{ m}^2/\text{g}$. Thus, the inventive example does not meet the limitation of claim 1. This rejection is based on the well established proposition of patent law that no invention resides in combining old ingredients of known properties where the results obtained thereby are no more than the additive effect of the ingredients, *In re Sussman*, 1943 C.D. 518. Applicants' invention is predicated on an unexpected result, which typically involves synergism, an unpredictable phenomenon, highly dependent upon specific proportions and/or amounts of particular ingredients. Any mixture of the components embraced by the claims which does not exhibit an unexpected result (e.g., synergism) is therefore ipso facto unpatentable.

Accordingly, the instant claims, in the range of proportions where no unexpected results are observed (e.g., BET surface area of $18 \pm 5 \text{ m}^2/\text{g}$), would have been obvious to one of ordinary skill having the above cited references before him.

Conclusion

The claims remain rejected.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR Only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Courtney Brown, whose telephone number is 571-270-3284. The examiner can normally be reached on Monday-Friday from 8 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

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Supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Ernst V Arnold/
Primary Examiner, Art Unit 1616